What is claimed is:

1. A semiconductor laser, comprising:

an n-type cladding layer that has n-type conductivity;

an active layer formed on top of the n-type cladding layer;

a p-type cladding base layer that is formed on top of the active layer and has p-type conductivity;

a current-blocking layer that is formed on specified parts of an upper surface of the p-type cladding base layer and substantially has n-type conductivity; and

a p-type buried cladding layer that has p-type conductivity and is formed so as to cover the current-blocking layer and contact remaining parts of the upper surface of the p-type cladding base layer,

wherein the current-blocking layer has at least two regions having different concentrations (hereafter "N1" and "N2" where N1<N2) of n-type carriers, a region adjacent to an interface between the p-type cladding base layer and the p-type buried cladding layer having the N1 concentration of n-type carriers and a part or all of a remaining region of the current-blocking layer region having the N2 concentration.

2. A semiconductor laser according to Claim 1, wherein the current-blocking layer includes a first layer that contacts the p-type cladding base layer and a second layer that is provided on top of the first layer, a concentration of n-type carriers in the first layer being N1 and a concentration of n-type carriers in the second layer being N2.

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3. A semiconductor laser according to Claim 2, wherein the first layer has a different composition to the second layer.

4. A semiconductor laser according to Claim 2, wherein one of the first layer and the second layer is composed of a plurality of sublayers that have at least two different compositions.

5. A semiconductor laser according to Claim 2, wherein the second layer is co-doped with a p2 concentration of p-type carriers and an n2 (where n2>p2) concentration of n-type carriers, and n2 and p2 are set so that n2-p2=N2.

6. A semiconductor laser according to Claim 5, wherein 0cm-3≤N1≤1017cm-3 and N2>1017cm-3.

7. A semiconductor laser according to Claim 4, wherein 0cm-3≤N1≤1017cm-3 and N2>1017cm-3.

8. A semiconductor laser according to Claim 3, wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

9. A semiconductor laser according to Claim 2, wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

10. A semiconductor laser according to Claim 1, wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

11. A semiconductor laser, comprising:

an n-type cladding layer that has n-type conductivity;

an active layer formed on top of the n-type cladding layer;

a p-type cladding base layer that is formed on top of the active layer and has p-type conductivity;

a current-blocking layer that is formed on specified parts of an upper surface of the p-type cladding base layer and substantially has n-type conductivity; and

a p-type buried cladding layer that has p-type conductivity and is formed so as to cover the

current-blocking layer and contact remaining parts of the upper surface of the p-type cladding base layer,

the current-blocking layer having a region with p-type conductivity adjacent to the interface between the p-type cladding base layer and the p-type buried cladding layer and another region with n-type conductivity.

12. A semiconductor laser, comprising:

an n-type cladding layer that has n-type conductivity;

an active layer formed on top of the n-type cladding layer;

a p-type cladding base layer that is formed on top of the active layer and has p-type conductivity;

an interjacent layer that has p-type conductivity and is formed on specified parts of an upper surface of the p-type cladding base layer and contacts the p-type cladding base layer;

a current-blocking layer that is formed on the interjacent layer and has n-type conductivity; and

a p-type buried cladding layer that has p-type conductivity and is formed so as to cover the current-blocking layer and contact remaining parts of the upper surface of the p-type cladding base layer,

the interjacent layer being positioned between the current-blocking layer and the p-type cladding base layer so that a lower surface of the current-blocking layer is separated from an upper surface of the p-type cladding base layer.

13. A semiconductor laser according to Claim 12,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

14. A semiconductor laser according to Claim 11,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

15. A semiconductor laser according to Claim 10,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

16. A semiconductor laser according to Claim 9,

wherein the p-type buried cladding layer has a higher refractive index of laser light than the current-blocking layer.

17. A semiconductor laser according to Claim 8,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

18. A semiconductor laser according to Claim 7, wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

19. A semiconductor laser according to Claim 6, wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

20. A semiconductor laser according to Claim 5, wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

21. A semiconductor laser according to Claim 4, wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

22. A semiconductor laser according to Claim 3, wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

23. A semiconductor laser according to Claim 2,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

24. A semiconductor laser according to Claim 1,

wherein the p-type buried cladding layer has a higher refractive index of light than the current-blocking layer.

25. A semiconductor laser manufacturing method, comprising:

a first process for successively forming an n-type cladding layer having n-type conductivity, an active layer, and a p-type cladding base layer having p-type conductivity on top of one another, before forming a current-blocking layer, which substantially has n-type conductivity, on specified parts of an upper surface of the p-type cladding base layer;

a second process for performing thermal cleaning in a presence of a specified gas after the first process has finished;

a third process for forming, after the second process has finished, a p-type buried cladding layer, which has p-type conductivity, so as to cover the current-blocking layer and contact remaining parts of the upper surface of the p-type cladding base layer,

the first process including:

a first subprocess for forming a region of the current-blocking layer that is adjacent to the interface between the p-type cladding base layer and the p-type buried cladding layer with a concentration (hereafter, "N1") of n-type carriers; and

a second subprocess for forming another region in at least part of the current-blocking layer with a concentration (hereafter, "N2") of n-type carriers, where N1<N2.

26. A semiconductor laser manufacturing method according to Claim 25,

wherein the first process produces the current-blocking layer by forming a first layer that contacts the p-type cladding base layer and a second layer on top of the first layer, a concentration of n-type carriers being N1 in the first layer and N2 in the second layer.

27. A semiconductor laser manufacturing method according to Claim 26,

wherein the first process forms the first layer from a different composition of materials to the second layer.

28. A semiconductor laser manufacturing method according to Claim 26,

wherein the first process produces one of the first layer and the second layer by forming sublayers from at least two different compositions of materials.

29. A semiconductor laser manufacturing method according to Claim 26,

wherein the first process co-dopes the second layer with a p2 concentration of p-type carriers and an n2 (where n2>p2) concentration of n-type carriers, and N2=(n2-p2).

30. A semiconductor laser manufacturing method according to Claim 29,

wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

31. A semiconductor laser manufacturing method according to Claim 28,

wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

32. A semiconductor laser manufacturing method according to Claim 27,

wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

33. A semiconductor laser manufacturing method according to Claim 26,

wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

34. A semiconductor laser manufacturing method according to Claim 25,

wherein $0cm^{-3} \leq N1 \leq 10^{17}cm^{-3}$ and $N2 > 10^{17}cm^{-3}$.

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35. A semiconductor laser manufacturing method, comprising:

a first process for successively forming an n-type cladding layer having n-type conductivity, an active layer, and a p-type cladding base layer having p-type conductivity on top of one another, before forming a current-blocking layer, which substantially has n-type conductivity, on specified parts of an upper surface of the p-type cladding base layer;

a second process for performing thermal cleaning in a presence of a specified gas after the first process has finished;

a third process for forming, after the second process has finished, a p-type buried cladding layer, which has p-type conductivity, so as to cover the current-blocking layer and contact remaining parts of the upper surface of

the p-type cladding base layer,

the first process forming the current-blocking layer so as to include a region with n-type conductivity and a region with p-type conductivity, the first process including:

a first subprocess for forming a region with p-type conductivity adjacent to an interface between the p-type cladding base layer and the p-type buried cladding layer; and

a second subprocess for forming a region with n-type conductivity in at least part of a remainder of the current-blocking layer.

36. A semiconductor laser manufacturing method, comprising:

a first process for successively forming an n-type cladding layer having n-type conductivity, an active layer, a p-type cladding base layer having p-type conductivity, and an interjacent layer that has p-type conductivity and contacts the first p-type cladding base layer on top of one another, before forming a current-blocking layer, which substantially has n-type conductivity, on an upper surface of the interjacent layer;

a second process for performing thermal cleaning in

a presence of a specified gas after the first process has finished;

a third process for forming, after the second process has finished, a p-type buried cladding layer, which has p-type conductivity, so as to cover the current-blocking layer and contact remaining parts of the upper surface of the p-type cladding base layer,

the interjacent layer being formed between the current blocking layer and the p-type cladding base layer so that a lower surface of the current-blocking layer is separated from an upper surface of the p-type cladding base layer

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